BLN and BCN Fuse Service Manual

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Bay Networks

Bay Networks

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USA Requirements Only

Federal Communications Commission (FCC) Compliance Notice: Radio Frequency Notice

This equipment generates, uses, and can radiate radio-frequency energy. If you do not install and use this equipment according to the instruction manual, this product may interfere with radio communications. This product has been tested and found to comply with the limits for a Class A computing device, pursuant to Subpart J of Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. Operating this equipment in a residential area is likely to interfere with radio communications; in which case, the user, at his/her own expense, must correct the interference.

Shielded-compliant cables must be used with this unit to ensure compliance with the Class A limits.

EN 55 022 Declaration of Conformance

This is to certify that the Bay Networks products in this book are shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 022:1987 Class A (CISPR 22:1985/BS 6527:1988).

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This is to certify that the Bay Networks products in this book are shielded against the generation of radio interference in accordance with the application of Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 022:1987 Class B (CISPR 22:1985/BS 6527:1988).

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Voluntary Control Council for Interference (VCCI) Statement

This equipment is in the 1st category (information equipment to be used in commercial and/or industrial areas) and conforms to the standards set by the Voluntary Control Council for Interference by Data Processing Equipment and Electronic Office Machines that are aimed at preventing radio interference in commercial and/or industrial areas.

Consequently, when this equipment is used in a residential area or in an adjacent area thereto, radio interference may be caused to equipment such as radios and TV receivers.

Compliance with the applicable regulations is dependent upon the use of shielded cables. The user is responsible for procuring the appropriate cables. Read instructions for correct handling.

Canada Requirements Only

Canada CS-03 Rules and Regulations

Note: The Canadian Department of Communications label identifies certified equipment. The certification means that the equipment meets certain telecommunications network protective operations and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above conditions may not prevent the degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment orequipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electric inspection authority, or electrician, as appropriate.

Canada CS-03 — Règles et règlements

Note: L’étiquette du ministère des Communications du Canada indique que l’appareillage est certifié, c’est-à-dire qu’il respecte certaines exigences de sécurité et de fonctionnement visant les réseaux de télécommunications.Le ministère ne garantit pas que l’appareillage fonctionnera à la satisfaction de l’utilisateur.

Avant d’installer l’appareillage, s’assurer qu’il peut être branché aux installations du service de télécommunications local. L’appareillage doit aussi être raccordé selon des méthodes acceptées. Dans certains cas, le câblage interne du service de télécommunications utilisé pour une ligne individuelle peut être allongé au moyen d’un connecteur certifié (prolongateur téléphonique). Le client doit toutefois prendre note qu’une telle installation n’assure pas un service parfait en tout temps.

Les réparations de l’appareillage certifié devraient être confiées à un service d’entretien canadien désigné par le fournisseur. En cas de réparation ou de modification effectuées par l’utilisateur ou de mauvais fonctionnement de l’appareillage, le service de télécommunications peut demander le débranchment de l’appareillage.

Pour leur propre sécurité, les utilisateurs devraient s’assurer que les mises à la terre des lignes de distribution d’électricité, des lignes téléphoniques et de la tuyauterie métallique interne sont raccordées ensemble. Cette mesure de sécurité est particulièrement importante en milieu rural.

Attention: Les utilisateurs ne doivent pas procéder à ces raccordements eux-mêmes mais doivent plutôt faire appel aux pouvoirs de réglementation en cause ou à un électricien, selon le cas.

Canada Requirements Only *(continued)*

D. O. C. Explanatory Notes: Equipment Attachment Limitations

The Canadian Department of Communications label identifies certified equipment. This certification meets certain telecommunication network protective, operational and safety requirements. The department does not guarantee the equipment will operate to the users satisfaction.

Before installing the equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the company's inside wiring associated with a single line individual service may be extended by means of a certified connector assembly (telephone extension cord). The customer should be aware that compliance with the above condition may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Caution: Users should not attempt to make such connections themselves, but should contact the appropriate electrical inspection authority, or electrician, as appropriate.

Notes explicatives du ministère des Communications: limites visant les accessoires

L'étiquette du ministère des Communications du Canada indique que l'appareillage est certifié, c'est-à-dire qu'il respecte certaines exigences de sécurité et de fonctionnement visant les réseaux de télécommunications. Le ministère ne garantit pas que l'appareillage fonctionnera à la satisfaction de l'utilisateur.

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Attention: Les utilisateurs ne doivent pas procéder à ces raccordements eux-mêmes mais doivent plutôt faire appel aux pouvoirs de réglementation en cause ou à un électricien, selon le cas.

Canada Requirements Only *(continued)*

Canadian Department of Communications Radio Interference Regulations

This digital apparatus (Access Feeder Node, Access Link Node, Access Node, Access Stack Node, Backbone Concentrator Node, Backbone Concentrator Node Switch, Backbone Link Node, Backbone Link Node Switch, Concentrator Node, Feeder Node, Link Node) does not exceed the Class A limits for radio-noise emissions from digital apparatus as set out in the Radio Interference Regulations of the Canadian Department of Communications.

Réglement sur le brouillage radioélectrique du ministère des Communications

Cet appareil numérique (Access Feeder Node, Access Link Node, Access Node, Access Stack Node, Backbone Concentrator Node, Backbone Concentrator Node Switch, Backbone Link Node, Backbone Link Node Switch, Concentrator Node, Feeder Node, Link Node) respecte les limites de bruits radioélectriques visant les appareils numériques de classe A prescrites dans le Réglement sur le brouillage radioélectrique du ministère des Communications du Canada.

T1 Service Compliance Statements

T1 Service

NOTE: This T1 Service notice applies to you only if you have received a single or dual port Multi-Channel T1 (MCT1) Link Module (which provides an internal CSU).

This equipment complies with Part 68 of FCC Rules. Please note the following:

1. You are required to request T1 service from the telephone company before you connect the CSU to a T1 network. When you request T1 service, you must provide the telephone company with the following data:
   - The Facility Interface Code

     Provide the telephone company with both codes below:

     — 04DU9-B (1.544 MB D4 framing format)
     — 04DU9-C (1.544 MB ESF format)

     The telephone company will select the code it has available.
   - The Service Order Code: 6.0F
   - The required USOC jack: RJ48C
   - The make, model number, and FCC Registration number of the CSU.
2. Your telephone company may make changes to its facilities, equipment, operations, or procedures that could affect the proper functioning of your equipment. The telephone company will notify you in advance of such changes to give you an opportunity to maintain uninterrupted telephone service.
3. If your CSU causes harm to the telephone network, the telephone company may temporarily discontinue your service. If possible, they will notify you in advance, but if advance notice is not practical, you will be notified as soon as possible and will be informed of your right to file a complaint with the FCC.
4. If you experience trouble with the CSU, please contact Bay Networks Technical Response Center in your area for service or repairs. Repairs should be performed only by service personnel authorized by Bay Networks, Inc.

United States	1-800-2LAN-WAN
Valbonne, France	(33) 92-966-968
Sydney, Australia	(61) 2-903-5800
Tokyo, Japan	(81) 3-328-005
5. You are required to notify the telephone company when you disconnect the CSU from the network and when you disconnect the BCNX or BLNX from the network.

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About This Guide

Use this guide if you are responsible for inspecting and replacing fuses in Bay Networks™ Backbone Link Nodes (BLNs) or Backbone Concentrator Nodes (BCNs).

The BLNs referenced in this manual include BLN®/AC, BLN-2/AC, and BLN-2/DC devices. The BCNs referenced in this manual include BCN®/AC and BCN/DC devices.

Audience

Written for qualified service personnel, this guide describes how to troubleshoot, access, inspect, and replace fuses in BLNs and BCNs.

Bay Networks Customer Support

Bay Networks provides live telephone technical support to our distributors, resellers, and service-contracted customers from two U.S. and three international support centers. If you have purchased your Bay Networks product from a distributor or authorized reseller, contact the technical support staff of that distributor or reseller for assistance with installation, configuration, troubleshooting, or integration issues.

Customers also have the option of purchasing direct support from Bay Networks through a variety of service programs. The programs include priority access telephone support, on-site engineering assistance, software subscription, hardware replacement, and other programs designed to protect your investment.

To purchase any of these support programs, including PhonePlus™ for 24-hour telephone technical support, call 1-800-2LANWAN. Outside the U.S. and Canada, call (408) 764-1000. You can also receive information on support programs from your local Bay Networks field sales office, or purchase Bay Networks support directly from your reseller. Bay Networks provides several methods of receiving support and information on a nonpriority basis through the following automated systems.

CompuServe

Bay Networks maintains an active forum on CompuServe. All you need to join us online is a computer, a modem, and a CompuServe account. We also recommend using the CompuServe Information Manager software, available from CompuServe.

The Bay Networks forum contains libraries of technical and product documents designed to help you manage and troubleshoot your Bay Networks products. Software agents and patches are available, and the message boards are monitored by technical staff and can be a source for problem solving and shared experiences.

Customers and resellers holding Bay Networks service contracts can visit the special libraries to acquire advanced levels of support documentation and software.

To open an account and receive a local dial-up number, call CompuServe at 1-800-524-3388 and ask for Representative No. 591.

- In the United Kingdom, call Freephone 0800-289378.
- In Germany, call 0130-37-32.
- In Europe (except for the United Kingdom and Germany), call (44) 272-760681.
- Outside the U.S., Canada, and Europe, call (614) 529-1349 and ask for Representative No. 591, or consult your listings for an office near you.

Once you are online, you can reach our forum by typing the command GO BAYNETWORKS at any ! prompt.

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World Wide Web

The World Wide Web (WWW) is a global information system for file distribution and online document viewing via the Internet. You need a direct connection to the Internet and a Web Browser (such as Mosaic or Netscape).

Bay Networks maintains a WWW Home Page that you can access at http://www.baynetworks.com. One of the menu items on the Home Page is the Customer Support Web Server, which offers technical documents, software agents, and an E-mail capability for communicating with our technical support engineers.

How to Get Help

For additional information or advice, contact the Bay Networks Technical Response Center in your area:

Technical Response Center	Telephone Number	Fax Number
Billerica, MA	1-800-2LANWAN	(508) 670-8765
Santa Clara, CA	1-800-2LANWAN	(408) 764-1188
Valbonne, France	(33) 92-968-968	(33) 92-966-998
Sydney, Australia	(612) 9927-8800	(612) 9927-8811
Tokyo, Japan	(81) 3-5402-0180	(81) 3-5402-0173

Conventions

This section describes the conventions used in this guide.

italic text	Indicates book titles and variable values in event messages.
quotation marks (“ ”)	Indicate the title of a chapter or section within a book.
`screen text`	Indicates data that appears on the screen. Example: `GAME: Backbones 0 and 1 became disconnected`

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Acronyms

EMC	electromagnetic compatibility
BN	Backbone Node
BCN	Backbone Concentrator Node
BLN	Backbone Link Node
BLN-2	Backbone Link Node-2
BOFL	Breath of Life
FRE	Fast Redirection Engine
GAME	Gate Access Management Entity
LED	light emitting diode
LLC	Logical Link Control
SRM-F	System Resource Module-Front
SRM-L	System Resources Module-Link
WAN	Wide Area Network

Chapter 1
Replacing Fuses in a BLN

This chapter describes how to inspect and replace fuses in a BLN. The following warning applies to both BLNs and BCNs:

Danger: *Due to high-energy hazards, only qualified service personnel may perform the procedures described in this chapter.*

This chapter does not provide instructions for recovering from excessive current. If the BLN fails to receive power, excessive current may have overloaded the power supply fuse. Contact the Bay Networks Technical Response Center.

This chapter includes the following sections:

- "Isolating the Problem Fuse"
- "Removing the Fuse Access Panel"
- "Inspecting and Replacing the Problem Fuse"
- "Replacing the BLN Hardware Components"

Isolating the Problem Fuse

Eight fuses protect the SRM-L and SRM-F hardware modules, the intelligent link interfaces in each slot, and the Ethernet ports. One of these fuses might be blown if

- The Technician Interface fails to respond.
- A `Slot disconnected` or `Backbone disconnected` event message appears in the log, and one of the following occurs:
  - — All LEDs on a link module connector panel are not lit.
  - — The CR2 or CR3 LED on the SRM-L connector panel is not lit.
  - — The LEDs on a Fast Redirection Engine (FRE®) module are not lit.

    To view the FRE module LEDs, remove the front bezel and electromagnetic compatibility (EMC) shield. Then replace the EMC shield. Refer to your installation and maintenance guide as necessary.

Find the physical indicators and event messages issued by the Gate Access Management Entity (GAME®) operating system in Table 1-1 that apply, and the ID number and type of the problem fuse.

Table 1-1. Troubleshooting BLN Fuses

Physical Indicators	GAME Event Messages	Fuse ID	Amperage (Voltage)	Function
All SRM-F LEDs are off.	`Backbones 0 and 1 became disconnected`	F1	25 A (+5 V)	Slot 1 SRM-F

All FRE and link module LEDs are off in Slot 2, and all SRM-L LEDs are off.	`Backbones 2 and 3 became disconnected`
	
	`Slot 2 became disconnected`
		F2	25 A (+5 V)	Slot 1 SRM-L, Slot 2 link module, and FRE

All FRE and link module LEDs in Slot 3 are off.	`Slot 3 became disconnected`	F3	25 A (+5 V)	Slot 3 link module and FRE
All FRE and link module LEDs in Slot 4 are off.	`Slot 4 became disconnected`	F4	25 A (+5 V)	Slot 4 link module and FRE
All FRE and link module LEDs in Slot 5 are off.	`Slot 5 became disconnected`	F5	25 A (+5 V)	Slot 5 link module and FRE

(continued)

Table 1-1. Troubleshooting BLN Fuses *(continued)*

Physical Indicators	GAME Event Messages	Fuse ID	Amperage (Voltage)	Function

All FRE module LEDs in Slots 4 and 5 and the SRM-L 12-V 2 LED in Slot 1 are off.	`Backbones 0 and 1 became disconnected`
	
	`Slots 4 and 5 became disconnected`
		F6	7.5 A (+12 V)	Ethernet ports on Slots 4 and 5

All FRE module LEDs in Slots 2 and 3 and the SRM-L 12-V 1 LED in Slot 1 are off.	`Backbones 2 and 3 became disconnected`
	
	`Slots 2 and 3 became disconnected`
		F7	7.5 A (+12 V)	Ethernet ports on Slots 2 and 3

No response at Technician Interface console	Not applicable	F8	5 A (-12 V)	SRM-L (Technician Interface) console port
Not applicable	Not applicable	F9	25 A (+5 V)	Spare

Removing the Fuse Access Panel

The fuses are behind the fuse access panel, the metal panel where the Reset switch is mounted (Figure 1-1).

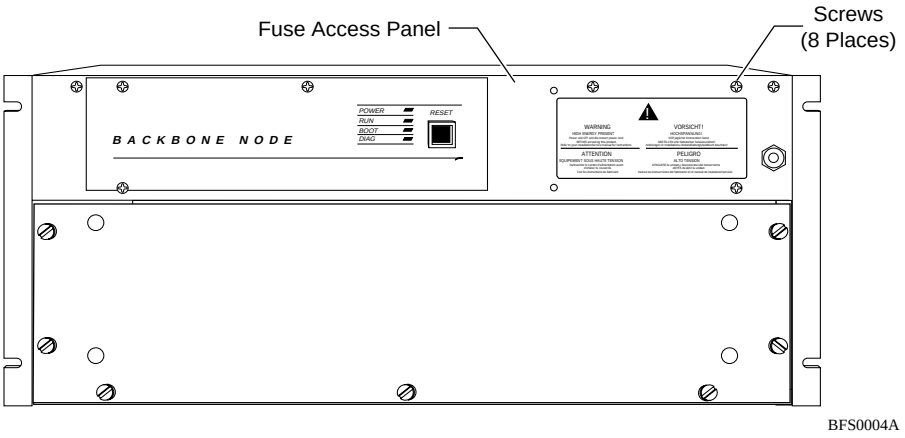

Figure 1-1. Removing the Fuse Access Panel from the BLN

Warning: *Electrostatic discharge can damage hardware. You must attach the antistatic strap to your wrist and connect it to the chassis behind the fuse access panel before you handle BLN components (refer to the instructions that follow).*

Remove the fuse access panel as follows. Refer to your installation and maintenance guide as necessary.

1. **Turn off the power to the BLN.**
2. **Disconnect the plug from the power receptacle.**
3. **Remove the front bezel.**
4. **Remove the antistatic strap, alligator clip, and fuse puller from the pouch attached to the back of the front bezel.**
5. **Insert the end of the antistatic strap into the hole in the alligator clip.**
6. **Wrap the band at one end of the antistatic strap around your wrist.**
7. **Ensure that the metal buckle inside the band is in contact with your skin. (Swing open the metal buckle to adjust the strap to form a snug fit if necessary.)**

   You connect the other end of the wrist strap after you remove the fuse access panel.

8. **Use a Phillips screwdriver to remove the screws that secure the fuse access panel to the chassis.**

9. **Remove the fuse access panel.**

Note: *Hold the fuse access panel in place several inches away from the chassis to avoid pulling the cable connecting the back of the panel to the BLN.*

10. **Connect the alligator clip on the other end of the antistatic strap to the chassis behind the fuse access panel (Figure 1-2).**

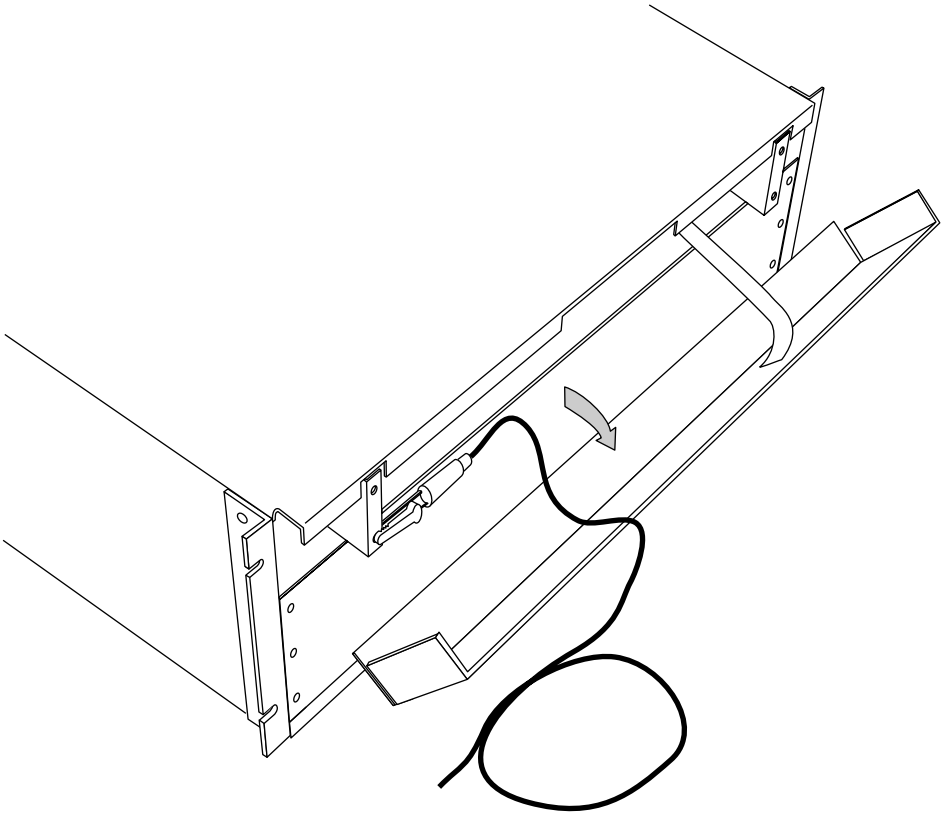

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Figure 1-2. Connecting the Antistatic Strap to the BLN Chassis

Inspecting and Replacing the Problem Fuse

The fuses are in fuse connectors mounted on a vertical plane inside the BLN (Figure 1-3).

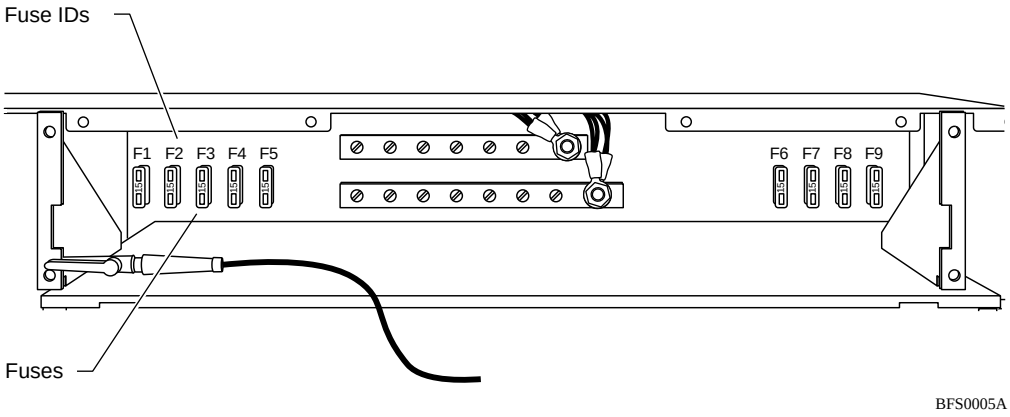

Figure 1-3. Location of Fuses in the BLN

A label identifies each fuse (F) connector by number. Find the label that matches the ID of the problem fuse you found in Table 1-1.

Remove, inspect, and replace the problem fuse as follows:

1. **Push the forked edge of the fuse puller over the fuse until it locks into place and then pull it toward you.**
2. **Inspect the fuse to determine whether it is blown.**

   The fuse is blown if it is smoked or the loop between the two sides of the fuse is broken (Figure 1-4).

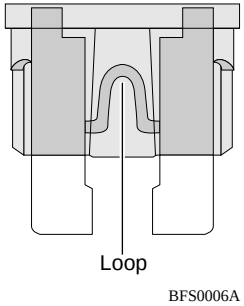

Figure 1-4. Fuse (Not Broken)

3. **If necessary, obtain a new fuse that matches the specifications shown in Table 1-1.**

   Remove the spare fuse from the F9 position if you need a 25-A (+5-V) fuse.

4. **Insert and push the fuse into the fuse connector.**

Replacing the BLN Hardware Components

Replace the BLN hardware components as follows:

1. **Disconnect the wrist strap from the chassis.**
2. **Insert and tighten the screws that fasten the fuse access panel to the chassis.**
3. **Insert the antistatic strap and fuse puller into the pouch and attach the pouch to the back of the front bezel.**
4. **Replace the front bezel.**

Chapter 2
Replacing Fuses in a BCN

This chapter describes how to inspect and replace fuses in a BCN. The following warning applies to both BCNs and BLNs:

Danger: *Due to high-energy hazards, only qualified service personnel may perform the procedures described in this chapter.*

This chapter does not provide instructions for recovering from excessive current. If a BCN fails to receive power, excessive current may have overloaded the circuit breakers. Contact the Bay Networks Technical Response Center.

This chapter includes the following sections:

- "Isolating the Problem Fuse"
- "Removing the Fuse Access Panel"
- "Inspecting and Replacing the Problem Fuse"
- "Replacing the BCN Hardware Components"

Isolating the Problem Fuse

Twenty-three fuses protect the SRM-L and SRM-F hardware modules, the intelligent link interfaces in each slot, the synchronous ports, and the fan tray. One of these fuses might be blown if

- The Technician Interface fails to respond.
- A `Slot disconnected` or `Backbone disconnected` event message appears in the log, and one of the following occurs:
  - — All LEDs on a link module connector panel are not lit.
  - — The CR2 or CR3 LED on the SRM-L connector panel is not lit.
  - — The LEDs on a Fast Redirection Engine (FRE) module are not lit.

    To view the FRE module LEDs, remove the front bezel and electromagnetic compatibility (EMC) shield. Then replace the EMC shield. Refer to your installation and maintenance guide as necessary.

Find the physical indicators and event messages in Table 2-1 that apply, and the ID number and type of the problem fuse.

Table 2-1. Troubleshooting BCN Fuses

Physical Indicators	Event Messages	Fuse ID	Amperage (Voltage)	Function
All FRE and link module LEDs are off in Slot 1.	`GAME: Slot 1 became disconnected`	F1	25 A (+5 V)	Slot 1 link module and FRE
All FRE and link module LEDs are off in Slot 2.	`GAME: Slot 2 became disconnected`	F2	25 A (+5 V)	Slot 2 link module and FRE
All FRE and link module LEDs are off in Slots 1 and 3.	`GAME: Slots 1 and 3 became disconnected`	F3	7.5 A (+12 V)	Slots 1 and 3 link modules and FREs
All FRE and link module LEDs are off in Slot 3.	`GAME: Slot 3 became disconnected`	F4	25 A (+5 V)	Slot 3 link module and FRE
All FRE and link module LEDs are off in Slot 4.	`GAME: Slot 4 became disconnected`	F5	25 A (+5 V)	Slot 4 link module and FRE

(continued)

Table 2-1. Troubleshooting BCN Fuses *(continued)*

Physical Indicators	Event Messages	Fuse ID	Amperage (Voltage)	Function
All FRE and link module LEDs are off in Slots 2 and 4.	`GAME: Slots 2 and 4 became disconnected`	F6	7.5 A (+12 V)	Slots 2 and 4 link modules and FREs
All FRE and link module LEDs are off in Slot 5.	`GAME: Slot 5 became disconnected`	F7	25 A (+5 V)	Slot 5 link module and FRE
All FRE and link module LEDs are off in Slot 6.	`GAME: Slot 6 became disconnected`	F8	25 A (+5 V)	Slot 6 link module and FRE

All FRE and link module LEDs are off in Slots 5 and 8, and all SRM-L LEDs are off.	`GAME: Backbones 2 and 3 became disconnected`
	
	`GAME: Slots 5 and 8 became disconnected`
		F9	7.5 A (+12 V)	Slots 5 and 8 FREs and SRM-L

All SRM-F LEDs are off.	`GAME: Backbones 0 and 1 became disconnected`	F10	25 A (+5 V)	SRM-F

All FRE and link module LEDs are off in Slot 8, and all SRM-L LEDs are off.	`GAME: Backbones 2 and 3 became disconnected`
	
	`GAME: Slot 8 became disconnected`
		F11	25 A (+5 V)	Slot 8 link module, FRE, and SRM-L

All FRE and link module LEDs are off in Slots 6 and 9, and all SRM-F LEDs are off.	`GAME: Backbones 0 and 1 became disconnected`
	
	`GAME: Slots 6 and 9 became disconnected`
		F12	7.5 A (+12 V)	Slots 6 and 9 link modules, FREs, and SRM-F

All FRE and link module LEDs are off in Slot 9, and all front-panel LEDs are off.	`GAME: System fan module failure, one or more fans not operating properly`
	
	`GAME: System temperature has risen into cautionary range`
	
	`GAME: Slot 9 became disconnected`
		F13	25 A (+5 V)	Slot 9 link module, FRE, and BCN fan tray

(continued)

Table 2-1. Troubleshooting BCN Fuses *(continued)*

Physical Indicators	Event Messages	Fuse ID	Amperage (Voltage)	Function
All FRE and link module LEDs are off in Slot 10.	`GAME: Slot 10 became disconnected`	F14	25 A (+5 V)	Slot 10 link module and FRE
All FRE and link module LEDs are off in Slots 10 and 12.	`GAME: Slots 10 and 12 became disconnected`	F15	7.5 A (+12 V)	Slots 10 and 12 link modules and FREs
All FRE and link module LEDs are off in Slot 11.	`GAME: Slot 11 became disconnected`	F16	25 A (+5 V)	Slot 11 link module and FRE
All FRE and link module LEDs are off in Slot 12.	`GAME: Slot 12 became disconnected`	F17	25 A (+5 V)	Slot 12 link module and FRE
All FRE and link module LEDs are off in Slots 11 and 13	`GAME: Slots 11 and 13 became disconnected`	F18	7.5 A (+12 V)	Slots 11 and 13 link modules and FREs
All FRE and link module LEDs are off in Slot 13.	`GAME: Slot 13 became disconnected`	F19	25 A (+5 V)	Slot 13 link module and FRE

All FRE and link module LEDs are off in Slot 14, and all front-panel LEDs are off.	`GAME: System fan module failure, one or more fans not operating properly`
	
	`GAME: System temperature has risen into cautionary range`
	
	`GAME: Slot 14 became disconnected`
		F20	7.5 A (+12 V)	Slot 14 link module, FRE, and BCN fan tray

All FRE and link module LEDs are off in Slot 14.	`GAME: Slot 14 became disconnected`	F21	25 A (+5 V)	Slot 14 link module and FRE
Not applicable	Not applicable	F22	7.5 A (+12 V)	Reserved for future use. If fuse is blown, disregard.
Not applicable	Not applicable	F23	7.5 A (+12 V)	Reserved for future use. If fuse is blown, disregard.
Not applicable	Not applicable	F24	25 A (+5 V)	Spare

(continued)

Table 2-1. Troubleshooting BCN Fuses *(continued)*

Physical Indicators	Event Messages	Fuse ID	Amperage (Voltage)	Function

Not applicable	`Sync: Connector COM <no.> can't run BOFL with chosen WAN protocol.`
	
	`Sync: Connector COM <no.> LLC<1_or_2> service withdrawn.`
	
	`Sync: System error, service attempting restart.`
		F25	5 A (-12 V)	Sync connectors in Slots 2, 4, 6, 9, 11, and 13

No response at Technician Interface console	`Sync: Connector COM <no.> can't run BOFL with chosen WAN protocol.`
	
	`Sync: Connector COM <no.> LLC<1_or_2> service withdrawn.`
	
	`Sync: System error, service attempting restart.`
		F26	5 A (-12 V)	Sync connectors in Slots 1, 3, 5, 8, 10, 12, and 14; and SRM-L (Technician Interface) console port

Removing the Fuse Access Panel

The fuses are behind the fuse access panel, the bottom rear panel of the BCN (Figure 2-1).

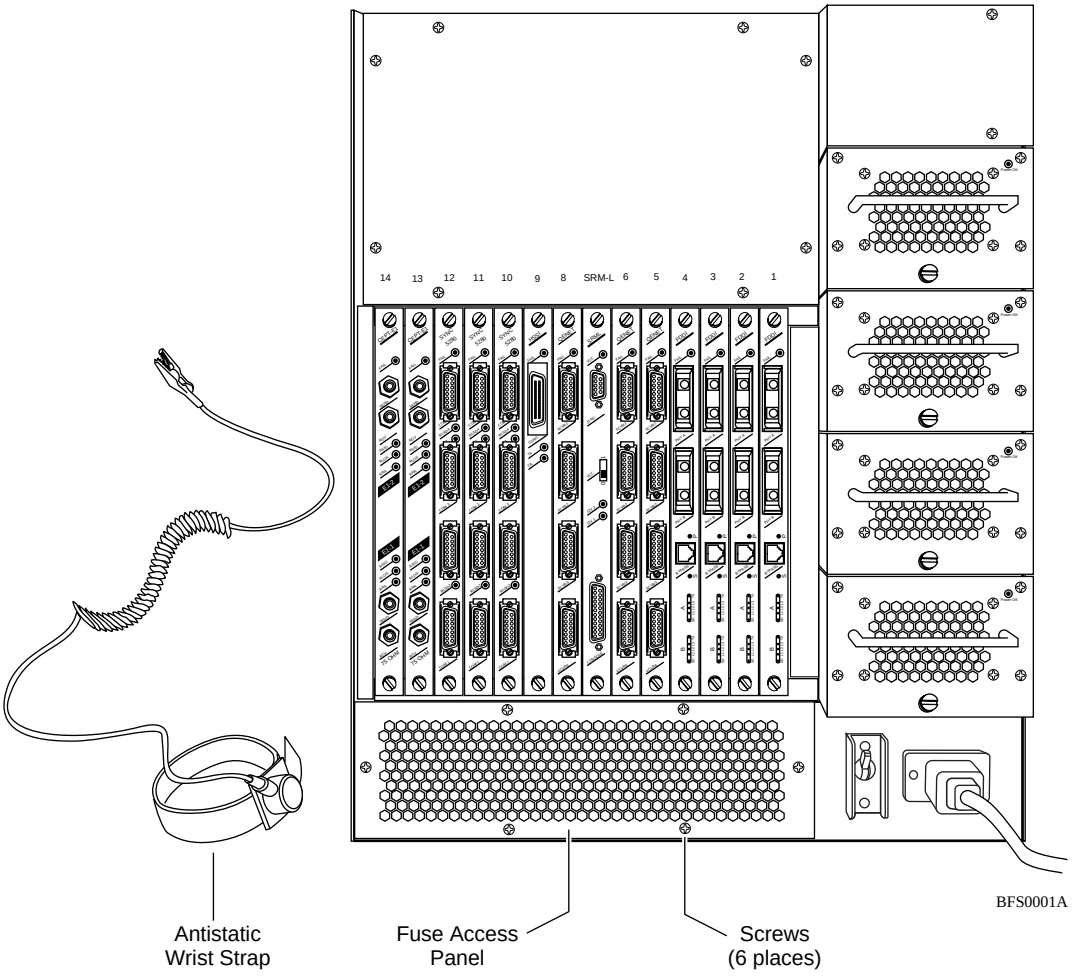

Figure 2-1. Removing the Fuse Access Panel from the BCN

Warning: *Electrostatic discharge can damage hardware. You must attach the antistatic strap to your wrist and connect it to the chassis before you handle BCN components (refer to the instructions that follow.)*

Remove the fuse access panel as follows. Refer to your installation and maintenance guide as necessary.

1. **Turn off the power to the BCN.**
2. **Disconnect the plug from the power receptacle.**
3. **Remove the front bezel.**
4. **Remove the antistatic strap and fuse puller from the pouch attached to the back of the front bezel.**
5. **Wrap the band at one end of the antistatic strap around your wrist.**
6. **Ensure that the metal buckle inside the band is in contact with your skin. (Swing open the metal buckle to adjust the strap to form a snug fit if necessary.)**
7. **Use a Phillips screwdriver to remove the screws that secure the fuse access panel to the chassis.**
8. **Remove the fuse access panel.**
9. **Connect the alligator clip on the other end of the antistatic strap to the chassis behind the fuse access panel.**

Inspecting and Replacing the Problem Fuse

The fuses are in fuse connectors mounted on a vertical plane inside the BCN (Figure 2-2).

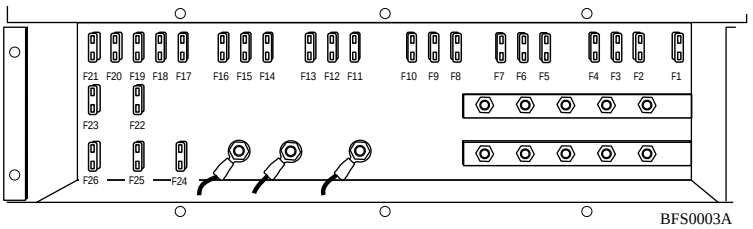

Figure 2-2. Location of Specialized Fuses in the BCN

A label identifies each fuse (F) connector by number. Find the label that matches the ID of the problem fuse you found in Table 2-1.

Remove, inspect, and replace the problem fuse as follows:

1. **Push the forked edge of the fuse puller over the fuse until it locks into place and then pull it toward you.**
2. **Inspect the fuse to determine whether it is blown.**

   The fuse is blown if it is smoked or the loop between the two sides of the fuse is broken (Figure 2-3).

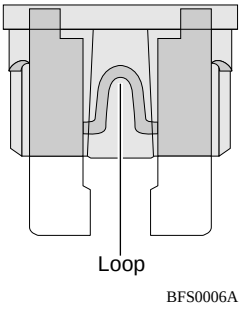

Figure 2-3. Fuse (Not Broken)

3. **If necessary, obtain a new fuse that matches the specifications shown in Table 2-1.**

   Remove the spare fuse from the F24 position if you need a 25-A (+5-V) fuse.
4. **Insert and push the fuse into the fuse connector.**

Replacing the BCN Hardware Components

Replace the BCN hardware components as follows:

1. **Disconnect the wrist strap from the chassis.**
2. **Insert and tighten the screws that fasten the fuse access panel to the chassis.**
3. **Insert the antistatic strap and fuse puller into the pouch and attach the pouch to the back of the front bezel.**
4. **Replace the front bezel.**

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